REMARKS:

1) Referring to item 10) of the Office Action Summary, please indicate the acceptance of the drawings filed on January 9, 2006.

2) The claims have been amended as follows. Independent claims 8 and 21 have been amended to further make clear and emphasize that the "collision contour" relates to and is defined by the desired final contour of the milled component that is to be produced. This feature is already included in the previous claims (but has now been clarified and emphasized), and is further supported in the original disclosure, for example page 1 lines 9 to 13, page 2 lines 15 to 18, page 6 lines 1 to 9, and page 7 lines 8 to 18. Several dependent claims have been amended for clarification and better conformance with the amended independent claims. These merely editorial amendments do not introduce any new matter. New claims 29 and 30 expressly recite that the collision contour corresponds exactly to only one edge of the component to be produced, and the at least one collision contour does not collectively define an entire topography of a surface of the structural component to be produced. This feature is supported in the original disclosure, for example at page 7 lines 8 to 18 wherein the collision contours each correspond only to the edges of the component to be produced, and the collision contours are defined simply by moving the tip of the milling tool along the edges of the component. This does not and cannot involve a definition of the entire topography of the surface of the structural component to be produced. Therefore, the present new

claims do not introduce any new matter. Entry of the claim amendments and the new claims is respectfully requested.

3) Referring to section 2 on pages 2 and 3 of the Office Action, the rejection of claims 8 to 17, 19 to 23, 25, 27 and 28 as anticipated by US Patent Application Publication US 2001/0048857 (Koch) is respectfully traversed.

It has been made clear in both independent claims that the respective collision contour relates to and is defined by the desired contour of the milled component that is to be produced (see the present specification at page 1 lines 9 to 13, page 2 lines 15 to 18, page 6 lines 1 to 9, page 6 line 22 to page 7 line 18). This is also evident in Figs. 1 and 2 of the drawings, which show the final desired contour of the rotor blades that are to be produced by the milling operation, and represent collisions of the milling tool with that final desired contour of the milled component to be produced.

The inventive method thus aims to avoid not only a collision of the milling tool with a portion of the workpiece in the process of being milled, but also a collision of the milling tool with other (not-yet-milled) portions of the workpiece that will form a final desired contour that is to be produced. For example, the present specification discusses two different types of collisions (see the specification at page 6 line 22 to page 7 line 7), as also shown in Fig. 1 and in Fig. 2 respectively. As shown in Fig. 1, one type of collision involves the milling tool 14 in the process of milling a rotor blade 12 but potentially colliding with another portion of the workpiece that

will become another rotor blade 11 having the final desired contour of the milled component to be produced. On the other hand, Fig. 2 shows a second type of collision that involves the milling tool 14 colliding with the rotor blade 11 that is in the process of being milled. The invention aims to avoid both of these types of collisions.

This is achieved by the invention because the collision contour is defined in terms of the finished desired contour of the milled component that is to be produced. Thus, the present inventive method does not merely take into account the actual existing machined surface of the workpiece during progress of the milling operation, but rather takes into account all pertinent collision contours (e.g. at least one collision contour) defined by the final desired contour of the resulting milled component that is to be produced. Also, the inventive method takes into account collision contours at areas other than the surface that is being machined during the progress of the milling method.

In contrast to the present invention, the method according to Koch expressly aims to avoid collisions of the cutter head "with the shape of the workpiece that is in the process of being formed" (paragraph 0005, underlining added), i.e. the actual existing milled surface of the workpiece as it is being formed rather than the desired surface contour of the product to be produced. The Koch method aims to predict an impending collision by analyzing "the spacial relationship between the respective geometric envelopes of the tool 2 and the workpiece in progress" (paragraph 0056, underlining added). Thereby "a collision

between the tool 2 ... and the workpiece surface in progress, can be avoided" (paragraph 0058, underlining added).

In effect, Koch is only concerned with and can only aim to avoid collisions between the milling tool and the actual existing "in progress" surface contour of the portion of the workpiece that is being milled in the process of being machined. In this regard, Koch points out that the milling tool is thereby "at any time in the process optimally adapted to the surface wall of the workpiece as it is being shaped" (paragraph 0009, underlining added). These teachings of Koch might be said by the Examiner to relate to Fig. 2 of the present application, but they do not relate to or suggest a collision avoidance in the situation of Fig. 1 of the present application, where the collision does not involve the actual existing surface contour of the portion of the workpiece in the process of being milled, or even previously milled, but rather involves another portion of the workpiece that is not yet in the process of being milled but rather will still be milled in the future in order to achieve the finished desired contour of the milled component that is to be produced. In effect, the method according to Koch does not "look ahead" at all possible collision contours relating to the finished desired contour of the milled component that is to be produced, but rather only looks at potential collisions of the milling tool with the actual existing milled shape of the workpiece in the process of being formed (paragraphs 0005, 0009, 0019, 0020, 0055, 0056, 0057, 0058). This is a major distinction between the present invention and the method of Koch. Because Koch does not disclose the presently claimed feature of defining a collision

contour based on the final desired contour of the milled component to be produced, Koch does not anticipate the respective invention of either independent claim 8 or independent claim 21.

Furthermore, the inventions of claim 8 and claim 21 would not have been obvious, because a person of ordinary skill in the art would have found no suggestion or motivation, or any reasonable expectation of achieving a predictable result from the teachings of Koch, to modify the Koch method so as to instead pursue a method according to the present inventions of claim 8 or claim 21. Namely, Koch repeatedly teaches that the collision contour involves a collision of the milling tool with the actual existing milled surface shape of the workpiece that is in the process of being formed. There is no teaching or suggestion by Koch that instead one should consider the final desired contour of the milled component that is to be produced, and define a collision contour based on that final desired contour of the component that is to be produced. A person of ordinary skill considering a collision that involves the actual existing milled surface in the process of being formed would not have been motivated or enabled to instead consider potential collisions of future surface contours relating to other portions of the final desired contour of the milled component that is to be produced. This distinction is represented in a simple manner by comparing Fig. 2 to Fig. 1 of the present application. In Fig. 1, if it is considered that the right rotor blade 12 is in the process of being milled, and the portion of the workpiece that will ultimately form the left rotor blade 11 has not been and is not yet being milled, then the method according to Koch would

apparently not yet consider a potential collision with the future rotor blade 11 that is not yet in the process of being milled, but rather would only consider the actual existing shape of the workpiece in the process of being milled (perhaps like Fig. 2). On the other hand, the invention also considers future contour shapes or portions of the desired finished contour of the milled component that is to be produced, including the not-yet-existent left rotor blade 11 when the right rotor blade 12 is in the process of being milled. Nothing in the Koch disclosure would have given the ordinarily skilled artisan a reason or purpose to additionally consider future unknown collisions based on the method of Koch. For these reasons, the inventions of the present claims also would not have been obvious over the prior art.

The dependent claims recite additional features that further distinguish the invention over the prior art, as follows.

Claims 19 and 27 each respectively recite that a collision contour corresponds to an edge of the component to be produced or of the desired milled shape of the milled component. In this regard, the Examiner has asserted that "the CAD model encompasses all parts of the workpiece including edges" (underlining added). However, claims 19 and 27 do not recite that the collision contour encompasses or includes one of the edges of the component to be produced or of the desired milled shape of the milled component. Instead, claims 19 and 27 expressly recite that the collision contour corresponds to an edge. In the Koch method, even if the CAD model encompasses or includes the edges, it also includes all other features making up the entire topography of the surface of the workpiece (see paragraphs 0018, 0041, 0056,

0057, 0059, 0065, 0069). Thus, the collision contour of Koch corresponds to a much larger data set and thus requires a much larger computational effort and expense than the invention.

The just-discussed distinction between the invention and the Koch reference has been further emphasized in new dependent claims 29 and 30 which expressly recite that each collision contour respectively corresponds exactly to only one edge of the component to be produced or of the desired milled shape of the milled component, and the collision contour or contours do not collectively define an entire topography of the surface of the structural component to be produced or of the desired milled shape of the milled component. These claims are thus directly contrary to the express disclosures of Koch.

Claims 20 and 25 recite that the collision contour is defined by moving the milling tool along and in contact with an edge of a sample model that has the desired milled shape of the milled component to be produced. The Examiner has not particularly addressed this feature of the invention recited in claims 20 and 25. Such a feature was not found in the Koch disclosure, and would not have been obvious therefrom, because Koch defines the collision contours based on an entire surface topography of the workpiece in the process of being milled, and not merely as a collision contour corresponding to a line along a desired edge of the milled component to be produced.

For the above reasons, the Examiner is respectfully requested to withdraw the rejection applying Koch.

4) Favorable reconsideration and allowance of the application, including all present claims 8 to 17, 19 to 23, 25 and 27 to 30, are respectfully requested.

Respectfully submitted,

By _____
Walter F. Fasse
Patent Attorney
Reg. No.: 36132
Tel. 207-862-4671
Fax. 207-862-4681
P.O. Box 726
Hampden, ME 04444-0726

WFF:he/4930
Enclosures:
Transmittal Cover Sheet
Term Extension Request
Form PTO-2038

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_____ 2/11/10
Name: Walter F. Fasse - Date: February 11, 2010